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DRIED MAGNESIUM SULPHATE.

By W. A. Puckner and L. E. Warren.

The Committee of the American Pharmaceutical Association for standards of unofficial drugs and chemical products having considered "Dried magnesium sulphate" the subject was assigned to the senior author of this paper as referee for the preparation of tentative standards. Accordingly provisional academic standards for the substance were prepared and submitted for criticism to a number of manufacturers of chemicals and to several chemists whom it was thought would be interested. At the same time several brands of the product were purchased and examined.

Dried magnesium sulphate is official in several of the foreign pharmacopœias. In the Pharmacopœia formerly official in Austria the method directed for the preparation of the product was to dry the crystallized magnesium sulphate first upon the water bath with stirring and then on a sand bath until a loss of 43 per cent. should be attained. The composition of the residual salt was supposed to correspond approximately to the formula $MgSO_4 + H_2O$. Such a salt should contain about 87.0 per cent. of anhydrous magnesium sulphate. In the last edition of the Austrian Pharmacopœia it is directed to dry the salt on the water bath at 100° with stirring until 36 per cent. of the original weight has been lost. The formula of such a salt should be approximately $MgSO_4+2H_2O$, corresponding to about 77.0 per cent. anhydrous magnesium sulphate. The directions given by the German Pharmacopœia (ed. 5) are to dry the salt in a porcelain dish on a water bath until it has lost from 35 to 37 per cent. of its weight. Such a salt should contain from 75.15 per cent. to 77.54 per cent. of anhydrous magnesium

sulphate ($MgSO_4$) yet the purity rubric demanded by this same authority is only 70 per cent. of anhydrous substance. The salt is also official in the Swiss Pharmacopœia, the method of preparation being similar to that prescribed in the German Pharmacopœia except that the crystallized salt is allowed to effloresce in the air before heating.

Dried magnesium sulphate was prepared by several methods. The first was by the method prescribed in the German Pharmacopœia. This consists in drying the crystallized salt on the water bath with stirring until the substance has lost from 35 to 37 per cent. of the original weight. Owing to the time required it was found impracticable to dry the crystallized salt on the water bath until the specified loss had cccurred. A specimen of 50 gm. of the commercial salt was dried in this manner during several working days and the loss amounted to but 33.7 per cent. instead of a minimum of 35.0 per cent. A duplicate lost 33.8 per cent. in 45 hours drying. Magnesium sulphate was determined in this specimen and 75.2 per cent. of the anhydrous salt found. When dried at 100° in the air oven for 4 hours a loss of 3.4 per cent. was noted in the same specimen.

Dried magnesium sulphate was also prepared by heating 100 gm. of crystallized magnesium sulphate in an air oven, first at a temperature of 60–70° and then at a gradually rising temperature until the specimen practically ceased to lose weight. A loss of 41.2 per cent. was noted. Several days' heating at a temperature of 100° with occasional maxima of 110° failed to secure a loss of 43 per cent. as required by the former Austrian Pharmacopœia (corresponding to the formula $MgSO_4.H_2O$). This specimen contained 84.7 per cent. anhydrous magnesium sulphate.

The most satisfactory method of preparation was found to be to dry the crystallized salt at a temperature of 60–70° with stirring and finally at 100° until a loss of 37 to 40 per cent. had been obtained. A specimen so prepared which had beer dried until 39.9 per cent. of the original weight had been lost contained 81.9 per cent. of anhydrous magnesium sulphate.

Three specimens of dried magnesium sulphate bearing the labels of as many makers were purchased on the open market and examined with reference to their content of anhydrous magnesium sulphate and to their loss when dried at 100°. Apparently as a protection against moisture all of the specimens purchased had

been wrapped in paper before being packed in the containers. Two of the latter were composed of thick pasteboard and the other of tin with a close fitting cover.

The magnesium, both in the laboratory specimens as prepared and in the specimens as purchased, was weighed as magnesium pyro-phosphate, the method being described in detail in another part of this paper. It was found that constant weight could not be attained when drying the commercial salt at 100° (at least during no reasonable length of time), the specimens continuing to lose weight very slowly even when dried for several days. It was therefore found expedient to record the results after drying for 4 hours at 100°.

The specimen bearing the label of the Mallinckrodt Chemical Works contained 67.2 per cent. anhydrous magnesium sulphate and lost 7.3 per cent. of water. The Powers-Weightman-Rosengarten specimen contained 64.9 per cent. anhydrous magnesium sulphate and lost 19.4 per cent. on drying. The Merck specimen contained 54.3 per cent. anhydrous magnesium sulphate and lost 26.1 per cent. on drying. While no claim for purity or strength is made upon the label of this specimen, the product sold by this firm is described in Merck's Index (1907) as containing about 2 molecules of water, corresponding to about 77.0 per cent. of anhydrous magnesium sulphate. The product as actually sold, therefore, contains but about 70.5 per cent. of the amount of anhydrous magnesium sulphate claimed for it. The results obtained for all of the specimens examined are tabulated below:

Laboratory number or brand.	Anhydrous magnesium sulphate ($MgSO_4$)	Water (Loss in 4 hours at 100°)
1 (Ph. G. V.)	75.26	3.4
2	84.68	Not determined
3	8.2	Not determined
M. C. W.	67.20	7.29
P. W. R.	64.93	19.42
Merck	54.27	26.16

Tests for heavy metals and for arsenic were made upon all of the specimens examined by methods described in another portion of this paper. The result in each case was negative.

The assertion is made in the literature that dried magnesium

sulphate absorbs moisture when exposed to the air and thus tends to revert toward the crystalline condition. As the crystalline salt is markedly efflorescent when exposed to the air (even losing as much as 7 to 8 per cent. of its weight) it seemed worth while to determine how far the dried salt would absorb moisture. Accordingly a specimen which had lost 41.2 per cent. of the original weight during the process of manufacture, was exposed in a flat-bottomed dish in a place protected from dust and a flat-bottomed dish containing water placed beside it. The water was replenished from time to time as it evaporated and the increase in weight of the exposed salt noted. In two months the specimen weighing 5.0027 gm. had gained 1.813 gm. equivalent to 36.24 per cent. of the original weight.

The examination shows that the dried magnesium sulphate on the American market is far from uniform in composition. This condition might be explained from the lack of authoritative standards for the product in this country. Since magnesium sulphate is usually administered in solution and since the dried salt contains only about 50 per cent. more of real magnesium sulphate ($MgSO_4$) than the official crystallized one it would appear that the dried salt is superfluous. Probably for these reasons the manufacturers have not considered the substance of sufficient importance to subject its manufacture to proper laboratory control.

Based upon the provisional academic standards as first prepared but modified as found necessary by the results of the experimental work, and by the suggestions offered by those to whom the provisional description was submitted for criticism,* the following standards for dried magnesium sulphate are suggested:

Dried Magnesium Sulphate—Magnesii Sulphas Exiccatus. Magnesium Sulphate dried at 100°C. corresponding to from 77.5 to 81.5 per cent. absolute magnesium sulphate.

Dried magnesium sulphate may be prepared by heating (with stirring) 100 parts of crystallized magnesium sulphate in a tarred porcelain dish in a drying oven first at a temperature of 60° to 70° and then at a gradually rising temperature until the substance has lost from 37 to 40 per cent. of its weight.

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* Our thanks are due to those manufacturers and chemists who have made suggestions and criticisms in the preparation of the provisional standards for dried magnesium sulphate.

A fine white powder, without odor, and having a cooling, saline, bitter taste. It is almost completely soluble in water. When exposed to air it absorbs moisture.

An aqueous solution of the salt (1 in 40) should be neutral to litmus paper.

When mixed with ammonium chloride test solution and ammonia water, the aqueous solution of the salt (1 in 40) yields with sodium phosphate test solution, a white, crystalline precipitate. With barium chloride test solution the aqueous solution of the salt yields a white precipitate insoluble in hydrochloric acid.

Ten c.c. of the aqueous solution of the salt (1 in 200) should not respond to the time limit test for heavy metals prescribed in the United States Pharmacopœia, 8th Revision. Five c.c. of the aqueous solution of the salt (1 in 40) should not respond to the modified Gutzeit's test for arsenic, United States Pharmacopœia, 8th Revision.

If from 0.200 gm. to 0.300 gm. of dried magnesium sulphate be dissolved in 50 c.c. of water, the solution filtered if necessary, and if 10 c.c. of ammonium chloride test solution, 10 c.c. of sodium phosphate test solution and sufficient ammonia water to render the mixture alkaline, be added in the order named, shaking after the addition of each reagent, the mixture allowed to stand for 12 hours, the precipitate collected in a tarred Gooch crucible, washed with 1 per cent. ammonia water until free from chlorides, dried, heated to low redness for 15 minutes, cooled and weighed, the weight of the resultant magnesium pyrophosphate should correspond to at least 77.5 per cent. of pure anhydrous magnesium sulphate ($MgSO_4$).

From the Laboratory of the
American Medical Association.

THE PERMANGANATE TEST FOR COCAINE.

By Francis J. Seiter.

The behavior of cocaine with potassium permanganate was first described by F. Giesel.[1] He found that the crystalline precipitate of cocaine permanganate is very stable compared with the corre-

[1] Giesel—*Pharm. Zeit.* 1886 p. 132; also, *Chem. Centralbl.* 1887, p. 1448.

sponding salts of the majority of alkaloids and suggested it as a means of identifying cocaine.

Allen states [2] that Beckurts and List, working with cold saturated aqueous solutions of the hydrochlorides of the alkaloids to which was added decinormal solution of permanganate, drop by drop, observed immediate reduction, with separation of brown manganese oxide, in the cases of quinine, cinchonidine, cinchonine, cinchonamine, brucine, veratrine, colchicine, coniine, nicotine, aconitine, physostigmine, codeine and thebaine. Gradual reduction was caused by atropine, hyoscyamine, pilocarpine, berberine, piperine and strychnine. Morphine yielded a white precipitate of oxydimorphine while apomorphine immediately reduced the reagent with green color formation. Narceine, papaverine and narcotine yielded precipitates which decomposed upon addition of more than a few drops of permanganate.

Recently, Saporetti found [3] that B-eucaine would not decolorize permanganate solution while the other cocaine substitutes, A-eucaine, nirvanine, stovaine and alipine gradually decolorized the reagent.

In a previous paper in this JOURNAL, it was reported that five drops of 1 per cent. potassium permanganate were immediately reduced by 1/2 c.c. of a 2 per cent. solution of holocaine, acoine and euphthalmine while gradual reduction occurred in the cases of stovaine, A-eucaine and B-eucaine.

The permanganate test, as described by Giesel, was as follows: one centigram of the hydrochloride of cocaine was dissolved in one or two drops of water and 1 c.c. of 3 per cent. potassium permanganate solution was added. The precipitate of cocaine permanganate formed instantly. Lyons recommended [4] the use of strong cocaine solution and decinormal permanganate. It was found that 2 per cent. solutions of cocaine yielded a precipitate after a short time, but with 1 per cent. solutions, the crystals only formed when the solution was allowed to evaporate.

Inasmuch as the success of the test requires a considerable amount of cocaine, it is not surprising that Sonnié-Moret [5] found the reaction of no value in toxicological examinations. The test has, therefore, been abandoned, where small quantities of the alka-

[2] Allen, Comm. Org. Anal. 2nd Ed. Vol. III pt. II, p. 144.
[3] Saporetti. *Boll. Chim. Farm.*, 48, 479; also *Chem. Abstr.* 5, 762.
[4] A. B. Lyons—AM. JOUR. PHARM. 1886, 240.
[5] Sonnié-Moret, *Chem. Centralbl.*, 1893. 1 p. 859.

loid are concerned, in favor of the gold chloride and platinum chloride tests.[6]

Recently, the writer has studied the action of permanganate solutions of various concentrations upon solutions of cocaine for the purpose of increasing, if possible, the delicacy of the test.

When neutral solutions of cocaine were used, it was found that the limit of precipitation was reached when the solution contained 1 per cent. of cocaine hydrochloride and this was true whether five drops of a 1 per cent. or 1 c.c. of saturated, permanganate solution was added.

Acid solutions of cocaine hydrochloride were next treated with the permanganate solutions. It was found that acidity of the liquid favored the precipitation of cocaine permanganate. After several trials with various concentrations of acid and permanganate, acidity corresponding to 1 per cent. sulphuric acid, and a volume of saturated potassium permanganate equal to that of the cocaine solution yielded the best results.

The test as now used in this laboratory is then as follows: To 1 c.c. cocaine solution, add one drop of 25 per cent. sulphuric acid and 1 c.c. saturated potassium permanganate solution. After standing some time, a drop of the liquid is removed to a slide, cover glass adjusted, excess of liquid removed and a drop of water drawn under the cover glass by means of a piece of filter paper placed on the opposite side. The slide is then examined under the microscope for the characteristic violet-red rectangular plates of cocaine permanganate.

Working in the manner above described, the writer has detected cocaine in 1 c.c. of solution which contained .00033 gram cocaine hydrochloride, equivalent to 1 in 3,000.

The other common natural alkaloids and cocaine substitutes above mentioned, with the exception of A- and B-eucaine, when treated as in the above test were instantly oxidized. The two eucaines reduced the permanganate very slowly.

A-eucaine yielded very small irregular masses of violet-red leafy crystals in 1 per cent. solutions. In high dilutions (1:600) the crystals were better formed and resembled those of ammonium magnesium phosphate. The limit for the formation of the A-eucaine permanganate crystals is 1:5000.

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[6] See Am. Jour. Pharm., Vol. 83, p. 195.

B-eucaine yielded minute violet-red globules, which did not crystallize on standing, in 1 per cent. solutions but not with lesser concentrations.

The crystals were examined under a magnification of 80 diameters in all cases, except the A-eucaine crystals, which required use of a higher power.

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MAGMA MAGNESIA.*

BY S. L. HILTON.

(REVISED FORMULA)

Magnesium Sulphate, U.S.P.	350.	Gm.
Sodium Hydroxide,	119.	"
Gelatin,	.150	
Distilled Water, q. s.		
	1000.	Cc.

Dissolve the Magnesium Sulphate in 400 Cc. of distilled water, filter the solution through paper, dissolve the gelatine in 50 Cc. of hot water and add this solution to the Magnesium Sulphate and then wash the filter with several portions of distilled water using in all not more than 250 Cc.

Dissolve the Sodium Hydroxide in 400 Cc. of distilled water and when the solution has cooled add 300 Cc. of distilled water, mix thoroughly and when both solutions have cooled to the room temperature, add the solution of Sodium Hydroxide to the solution of Magnesium Sulphate by some means that will deliver the solution of Sodium Hydroxide in rapid drops. Stir the Magnesium Sulphate solution briskly until all of the Soda solution is added, then dilute with distilled water to make the mixture measure 3000 Cc.

Let stand until the precipitate has settled to the 1000 Cc. mark on the container, siphon off the supernatant liquid and add 2500 Cc. of water, stir well and set aside to settle again to the 1000 Cc.

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* Presented at the April, 1911 meeting of the City of Washington Branch of the American Pharmaceutical Association.

mark, again siphon off the supernatant liquid and add 2500 Cc. of distilled water, stir well and set aside to settle to the 1000 Cc. mark, siphon off the supernatant liquid and dilute the magma with distilled water until it measures 4000 Cc., stir well and set aside to settle to the 1000 Cc. mark, draw off the clear liquid, mix the magma well and assay by the process given, and dilute if necessary so that the preparation will contain 7.5 per cent. $Mg(OH)_2$.

ASSAY PROCESS.

To 10 Cc. accurately measured in a cylinder and washed, with several portions of distilled water, into a titrating flask add two drops of Phenolphthalein T. S. and 30 Cc. of Normal Sulphuric Acid V.S. the solution is then heated to insure complete reaction, and titrated back with Normal Potassium Hydroxide V.S. to the neutral point, the amount of Normal Potassium Hydroxide V.S. used deducted from the amount of acid previously added gives the amount Normal Sulphuric Acid required to neutralize the Magnesium Hydroxide present, which should be at least 26. Cc. Normal Sulphuric Acid V.S. corresponding to 7.5322 per cent. of Magnesium Hydroxide held in suspension.

With this formula and the process of assay it will be an easy matter to always make a product of definite strength and one that is always uniform.

A DELICATE TEST FOR ACETANILID.

By G. N. Watson,
Assistant in Drug Laboratory, University of Kansas.

Acetanilid when heated together with Boric Acid over naked flame until the Boric Acid melts produces a yellow residue having a peculiar fragrant odor suggestive of Sweet Clover or Arbutus. The yellow color, however, is produced by either Acetanilid or Phenacetine. Antipyrine produces a pink color and a Naphthalene-like odor. Phenacetine produces an odor but characteristic of itself, more faint than that produced by Acetanilid or Antipyrine. With mixtures of the Three Antipyretics, the fragrant odor produced by the action of the Acetanilid is sufficient to produce the characteristic

odor, which is intensified by adding a few drops of water to the residue.

This test suggests the use of Acetanilid as a test for Boric Acid, the delicacy of which is worthy of investigation.

March 22d, 1911.

PHARMACEUTICAL LEGISLATION AS APPLIED TO REGISTRATION AND ADULTERATION.

By Allen C. Thomas, Esq.

I deem it both an honor and pleasure to speak to this body of under-graduates. Our relationship will continue to be most pleasant as long as it is confined to occasions of a social, educational and scientific character. Far better that the pharmacist and lawyer meet as Knights of the Round Table than in the lists. Better to discuss the purposes and effects of legislation in the academic forum than to test their authority in the legal forum. Upon the theory of that old pharmaceutical adage, "An ounce of prevention is worth a pound of cure."

When your course shall have finished and your term of practical experience completed you will first apply for a certificate authorizing you to engage in business and thereafter your fitness will be determined primarily by your possession of such a certificate. The law requires that every proprietor, manager and qualified assistant having a certificate of registration shall display it in some conspicuous place in the retail drug store or pharmacy which he or she shall own or be employed.

In the State of Pennsylvania the authority to grant and issue such certificate is vested in the State Pharmaceutical Examining Board. The title is somewhat suggestive of the origin and purpose of the Board, *i.e.*, that of examining applicants for registration. To this feature of their duty I shall first direct your attention. Since the creation of the Board its functions have been extended and in addition to regulating the status of the pharmacist personally, the regulation of his business has also been placed under the control of this Board and of this regulation I shall speak secondly, indeed the subject will naturally present itself to you in this order as you will first consider qualifying to hang out your

shingle as pharmacist and secondly, conducting and operating your business in accordance with the law.

A word, therefore, concerning the Board to which you must shortly be introduced. It consists of five members appointed by the Governor from the most skilful retail apothecaries actually engaged in business in the State of Pennsylvania having at least ten years' experience. The Board is required to keep a book of registration in which is reported the name and address of each and every person duly qualified to conduct and carry on the retail drug and apothecary business or to hold the position of qualified assistant therein. Meetings of the Board are held every three months at such places as they deem expedient to conduct examinations on the basis of which certificates are granted as the case may be, either to registered managers or qualified assistants: such certificate is then good and sufficient evidence of registration. The following requirements are made of those applying for examination as qualified assistants, first, that they produce evidence of not less than two years' experience and pay the sum of $3.00 for examination and $5.00 for certificate and registration. For those applying for examination of registered managers satisfactory evidence of not less than 4 years' practical experience and paying a fee of $3.00 for examination and $12.00 for registration and certificate.

Now as to the relative effect of these two classes of certificates. No drug store or pharmacy can be conducted without a Registered Manager. The law, *i.e.*, the Act of Assembly does not prescribe the respective rights and duties of these classes in so many words, but that it makes the distinction is clearly seen and therefore practically leaves the determination of the matter to the constituted authority which it has empowered to enforce the Act, *i.e.*, the State Pharmaceutical Examining Board. Consequently the Board has held that the qualified assistant is to act only in the temporary absence of the Registered Manager. The failure of the law to define their respective rights and duties as well as the difficulty of determining the extent of authority exercised in any particular case by the qualified assistant has hindered the Board in the strict enforcement of their views in this matter.

The usual case of violation found is that of a Registered Manager who has two or more stores where he attempts to conduct them with only the assistance of qualified assistants, presuming that his qualification will extend authority to stores which he supervises

but in which he is not actually engaged. Presuming this condition is reported to the State Board, they will at once send their Agent to make a purchase of some drug or to have a prescription compounded and to secure a conviction. The purchase must be made at a time when the Registered Manager is elsewhere. Should he happen to be in this store at the time or should the Agent not be able to prove his absence the prosecution would fail as it must be established beyond a reasonable doubt that there was no Registered Manager present at the time of such sale.

The requirement that every drug store shall be in charge of a Registered Manager has been very effectivly enforced by the Board throughout the State so that at present there are few instances of violation in the larger cities. In other parts of the State, however, where the field is less attractive to the competent and qualified clerk or where detection and prosecution is difficult because of lack of information or inaccessibility, there are still frequently reported cases of attempted evasion of the law which makes necessary occasional crusades of prosecution in order to awaken the dormant conscience to a sense of duty and responsibility.

Just at this point a word that may be seasonable. Many an appeal for a competent clerk comes to the members of the Board and by reason of its familiarity with conditions generally the Board is in a sense an employment agency operated for the good of the individuals concerned and the State as well.

Another phase in the matter which may occur to you, *i.e.*, the case of a person who has no certificate or technical knowledge of the business owning a store. There is nothing to prevent this and in fact it has been decided where the question was raised in the case of Commonwealth vs. Zacharias reported in Volume 181 of the Pennsylvania State Reports, page 126, in 1897, "that the Act of Assembly seeks to regulate only the management of a retail drug store and does not prohibit a passive ownership, so in this case although the defendant was not a pharmacist and operated a chain of stores, the fact that each store was in charge of a Registered Manager prevented conviction and no prosecution could be sustained against him from the mere fact of ownership.

The restriction of the business to such as are qualified is doubly effective, protecting both the public and the profession. In the latter case excluding those who have not earned protection through study and experience. The Act reads "No person shall hereafter engage as

Manager in the business of an apothecary or pharmacist or of retailing drugs, chemicals, and poisons or to compound and dispense the prescriptions of physicians either directly or indirectly without having obtained such certificate." Just here you should note how complete is the language of the Act in the use of the words "compounding and dispensing." The Pennsylvania Board takes the view that compounding is limited to mean the assembling or mixing of the component ingredients, while dispensing includes all that is necessary to the act of filling the order and placing it in the hands of the purchaser.

There are certain exceptions mentioned in this Act where drugs may be dispensed by others than those holding certificates. First, physicians so far as they supply their own patients; second, makers and sellers of patent medicines, and third, storekeepers dealing in and selling the commonly used medicines and poisons.

This latter exemption has been the subject of much criticism and it seems to me justly. The prime object of the law being to safeguard the community—it seems eminently proper that the sale of poisons at any rate should be confined to the competent and qualified pharmacist so that every sale of a poison would be subject to the same degree of care and regulation as that exercised by the pharmacist.

The Act of 1887 after defining poison as "any drug, chemical or preparation which, according to standard works on medicine or materia medica, is liable to be destructive to adult human life in quantities of 60 grains or less," required affixing to the container a label containing the word "poison," the name of the article, and the name of the seller, place of business and further that the seller must satisfy himself that such poison is to be used for legitimate purposes. In addition the pharmacist must keep a poison register in which is to be entered in the case of sales of poison known to be destructive to human life in quantities of five grains or less, the name of the seller, the name and residence of the buyer, the name of the article, quantity sold or disposed of and the purpose for which it is said to be intended.

As to the first exemption in favor of physicians. I believe the sentiment among physicians is against dispensing their own medicines and where the allopath does supply his patients with medicine, it is largely because his homœopathic brother has forced the competition, yet the physician is only paying back in kind for has not

the pharmacist often suggested the remedy and himself prescribed the cure. I cannot see any particular public good to be obtained by the elimination of this clause.

Respecting the other exemption in favor of preparatory remedies or so-called patent medicines. While no reason exists for confining their sale to registered pharmacists there was ample need for regulation of another kind and it has at last been effected through the regulation respecting adulteration.

Now to treat of this important phase of legislation affecting the druggist or pharmacist, *i.e.*, adulteration. Along this line within recent years there has been great development and it has followed generally the trend of an enactment striking at unscrupulous commercialism and constantly unmasking the wolves in sheep's clothing. An era of more honest dealing in drugs as well as other commodities has been inaugurated and the punishment of adulteraters and misbranders is having a wholesome effect whereby a manufacturer, seller and consumer have all been benefited.

The first important act regulating the business of the dealer in drugs was that of May 24, 1887. Section 9 of this Act provided that "No person shall knowingly, wilfully or fraudulently falsify or adulterate or cause to be falsified or adulterated any drug or medicinal substance or any preparation authorized or recognized by the Pharmacopœia of the United States or used or intended to be used in medicinal practice nor mix or cause to be mixed with any such drug or medicinal substance any foreign or inert substance whatsoever for the purpose of destroying or weakening its medicinal power and effect and wilfully, *knowingly or fraudulently sell or cause the same to be sold for medicinal purposes.*" And this was the whole law on the subject of adulteration at that date and as such was inadequate in view of the fact that a person so adulterating must be proved to have done so with a wilful and deliberate intent so that the enactment was intended to strike at the abuse through correction administered to the pharmacist for his wrongful action, but this was insufficient to protect the public for which reason the later act of May 25, 1897, was passed in which the question of intent was eliminated and thereby the regulation made solely to protect the public and a fixed standard is established whereby the term drug is made to include any medicinal substance or preparation authorized or known to the Pharmacopœia of the United States, or the National Formulary or the American Homœopathic Pharma-

copœia or the American Homœopathic Dispensatory and the following five clauses enacted covering the possible ways in which the adulteration might occur, *i.e.:*

1. If any substance or substances have been mixed with it so as to depreciate and weaken its strength, purity or quality.

2. If any quality, substance or ingredient be abstracted so as to deteriorate or affect injuriously the quality or potency of the said drug.

3. If any inferior or cheaper substance or substances have been substituted in whole or part for it.

4. If it is an imitation or is sold under the name of another drug.

5. If the drug shall be so altered that the nature, quality, substance, commercial value or medicinal value of it will not correspond to the recognized formulæ or tests of the latest edition of the "National Formulary," or of the "Pharmacopœia of the United States," or the "American Homœopathic Pharmacopœia," or the "American Homœopathic Dispensatory," regarding quality or purity.

Prosecutions under this Act raised several important questions. In the first place you will note that the drug must correspond in all respects to the recognized formula or tests of the latest edition of the several authorities mentioned. Counsel seeking to make defense for their client charged with violation of this Act asserted that the Act was unconstitutional for several reasons, first, because it incorporated into the law a series of books hence the public were not informed of the text of the law except by going outside of the statute books whereas Article 3, Section 6 of the Constitution provides "No law shall be revived, amended or the provisions thereof extended or conferred by reference to its title only and so much thereof as is revived, amended, extended or conferred shall be reenacted and published at length." In considering their objection the court held that the Act referred to certain well-known medical books as standards for the definition of the word drug and also for the definition of that which shall be deemed an adulteration of a drug, that this was not in any sense an attempt on the part of the Legislature to revive or amend a law or to extend or confer the provisions thereof by reference to title only. That where impracticable either to publish at length the Court would not consider reference of this character unconstitutional.

Again, it was argued that the act delegated the power of making

the law to a body other than the Legislature; that the makers of the pharmacopœia were virtually invested with legislative functions in contravention of the Constitution, Article 2, Section1, which provides that "the legislative power of this Commonwealth shall be vested in a General Assembly, etc. It is a settled axiom that the power conferred on the Legislature to make laws cannot be delegated by that department to any other body or authority." "Where the sovereign power of a State has located the authority there it must remain. The power to whose judgment, wisdom and patriotism this high prerogative has been entrusted cannot relieve itself of the responsibility by choosing other agencies upon which the power shall be devolved nor can it substitute the judgment, wisdom and patriotism of any other body for those to which alone the people have seen fit to confide this sovereign trust." The Court, however, dismissed this contention, holding that the argument was defective considering that the Legislature adopted a standard already established, that there was no delegation of authority; that Act not meaning future standards, but that recognized as the standard at the time the law was made. The latest edition, therefore, meant not those to be in the future, but the edition then in force and effect.

This Act remained the law until the Legislature passed the Act of May 8, 1909 in force and effect on and after October 1, of that year. In the meantime the National Pure Food and Drug Act of 1906 had been passed. Much had been written and said about the injustice of such acts as that of 1897 where the standard was fixed by the several books specified in the Act from which no variation could or would be permitted. The objection was not made without reason and undoubtedly the Legislature was influenced by the number of important considerations to adopt what has been termed a variation provision so that deviation from the standard is now allowed provided the fact be plainly stated. It was urged that an iron-clad standard was un-American in that, first, it would stifle research, restrict progress and destroy incentive to advancement: second, however far-sighted, learned and skilful were the makers of the standard, they had neither the whole knowledge nor the last word—third, that the trade would be left with valuable dead stock and in conclusion, that the object of the law was to give what you have so frequently heard called "a square deal." Hence it is that in the Pennsylvania Act no official drug shall be deemed to be

adulterated if the standard of strength, quality or purity be plainly stated upon the bottle, box or other container. Freedom of manufacture and sale is thereby obtained together with the protection of the public by truthful statements accompanying the article.

Certain exceptions in which there may be no variation, however, are specified, *i.e.*, official preparations of opium, iodine, peppermint, camphor, ginger and ethol nitrite. In these instances the law is iron-clad and no deviation permitted. In another respect this Act settled a disputed point raised under the Act of 1897. Under the former Act certain manufacturers and dealers in this State were making and selling inferior preparations of standard articles but labelling them in a manner so different as to claim they were not U. S. P. For Tincture of Ginger, which is usually labelled "Essence of Jamaica Ginger," they made a preparation consisting principally of capsicum, grains of paradise or other pungent or hot drug and water with just sufficient alcohol to keep it from souring and a small quantity of ginger to impart certain of the characteristics of the genuine article was labelled "Climax Picnic Ginger," "Gilt Edge Ginger," etc. So also an article labelled "Camphorated Oil" was said not to be the same as "Linimentum Camphoræ," consequently the standard might be different from that required for the U. S. P. article, so that their article was not to be included in the class condemned, but the Court determined, as the recent Act has declared, thus placing the matter beyond dispute, that an article shall be deemed to be misbranded if it be an imitation of or offered for sale under the name of another article.

The important consideration under the present law is the matter of labelling or branding regarding which the State Board has laid down certain specific requirements. The enforcement of the act is delegated to the State Pharmaceutical Examining Board, which, for this purpose, is authorized to make uniform regulations in order to carry out its provisions and to employ such agents, chemists, attorneys and assistants as may be necessary. Accordingly rules and regulations were at once framed, adopted and published and copies of the same may be secured upon application to any member of the Board.

Hardly had the rules and regulations been promulgated when certain of the latter were attacked and it became a subject for much consideration to what extent the Board were warranted in going, *i.e.*, when the article differed in strength, purity or quality

from the pharmacopœial standard, did the language of the Act requiring the fact of difference to be plainly stated, justify the Board in requiring the use of the words "Not of official strength" and indeed in any instance if the vendor had printed on the label what was to his mind a plain statement although not in the form directed by the Board, might it not still be sufficient in the eyes of the law; at least these are the questions very shortly to arise in prosecutions recently instituted by the State Board.

At once certain manufacturers claimed that a hardship was imposed upon them when they were compelled to print a different label for every State in which their sales were made. In Pennsylvania, where the regulation required the words in certain instances, "Not Official Standard" necessitated the printing of a separate set of labels, cartons, containers, and literature, etc., for every sale made within the confines of the State of Pennsylvania, different from that used elsewhere. To this reply was made that since no other State could legitimately object to this language, the hardship was not as great as appeared on first impression. And they were advised to adopt the Pennsylvania form generally.

With changes so rapid in so diversified a country, with so many sovereign communities there is bound to be difference of opinion, failure to keep pace with the times; special interests undeservedly protected, all producing a lack of uniformity in legislation and diversity in the execution of the law. Nowhere is this better illustrated than in the case of manufacturers who furnish their products to retailers in 48 different States, subject to a variety of legislation and still greater variety of regulation so that a general law enforced through uniform regulations is a consummation devoutedly to be wished for, although hardly likely to be achieved while the States are independent sovereigns.

Some measure of co-ordination might be accomplished by the general adoption by the States of the national law, then by means of a parliament of Pharmaceutical Boards to harmonize the various views and opinions represented there might be evolved a comprehensive and uniform system for their enforcement throughout the United States.

While this discussion in some respects wants application to you as individuals, yet it may offer new avenues of thought suggestions of matters concerning your brethren which the minute they do apply become intensely real and important.

BOOK REVIEWS.

MUNICIPAL CHEMISTRY. A series of thirty lectures by experts on the application of chemistry to the city, delivered at the College of the City of New York. Edited by Prof. Charles Baskerville, New York and London: McGraw-Hill Book Company. 1911.

This book is the outcome of a course of lectures authorized by the Board of Trustees of the College of the city of New York, which were intended to enlighten the public as to what is being done for the municipality of the city of New York to safeguard health, facilitate traffic and add to the pleasures and comforts of life. While the lectures were open to the students of the college as well as the public, a laboratory course of instruction was provided for the senior student who elected the course, thus making it one of the most fruitful of instructive courses that have heretofore been attempted. At first glance the book would seem to be of more special interest to the chemist, but it will be found of very great value also to pharmacists, physicians, leaders in civic movements and all those who desire correct information on the scientific work which is being done in New York City and its application in raising the efficiency of the people and saving the lives especially of the innocent.

ALLEN'S COMMERCIAL ORGANIC ANALYSIS. Vol. iv. Resins, india-rubber, rubber substitutes and gutta-percha, hydrocarbons of essential oils, ketones of essential oils, volatile or essential oils, special characters of essential oils and tables of essential oils. Fourth edition, entirely rewritten. Edited by W. A. Davis and Samuel S. Sadtler. Philadelphia: P. Blakiston's Son & Co. 1911.

This is another of the volumes of Allen's Commercial Organic Analysis that will be welcomed by pharmacists who desire to be kept informed on the newer analytical methods which may be employed in the testing of the products which they handle. The monograph on the "Resins." is the work of Dr. M. Bennett Blackler and in it will be found very many useful hints regarding the examination of such commercial products as asafetida, turpentine, colophony, mastic, etc. The chapter on "India-rubber, Rubber-substitutes and gutta-percha" has been written by E. W. Lewis and of course will be especially valuable to the analyst who engages in the somewhat difficult work of examining rubber compounds.

Dr. T. Martin Lowry is the author of the chapters dealing with the "hydrocarbons and ketones of essential oils"; Mr. Ernest C. Parry has prepared the general monograph on "volatile or essential oils", while the "special characters of the individual essential oils" has been left in the hands of Dr. Henry Leffmann and Prof. Charles H. La Wall. While probably nothing, that has been done in the study of essential oils, can compare with the publications of Schunniel & Co., yet the subject is one of such great importance that analysts welcome the contributions from all practical writers, particularly when methods and results are presented in a readily available form as we find them in this volume.

A RESEARCH ON THE PINES OF AUSTRALIA. By Richard T. Baker, F.L.S., and Henry G. Smith, F.C.S. Published by authority of "The Government of the State of New South Wales." Sidney: William Applegate Gullick, Government Printer. 1910.

This is another one of those comprehensive and illuminating publications that has emanated from the Technological Museum, New South Wales. Here are two earnest workers, who are distinguished by reason of their earlier work on the "Eucalypts and their essential oils" (see this JOURNAL, Vol. 76) and who have now completed a "self-imposed and arduous task" which was made possible by the help and assistance of the higher officers of the Department of Public Instruction. This recent work of Baker and Smith, like their previous monograph on the Eucalypts will endure and is an example to individuals and governments if they would do something that is worth while. As Linnaeus well said in one of his addresses while professor in the University of Upsala, "to do great things one must leave little things alone."

The authors state that of the 32 genera described in Bentham and Hooker's "Genera Plantarum," 11 are found in Australia and Tasmania. As a result of their studies these genera are presented in the following sequence: *Callitris* with 18 species; *Actinostrobus* with 2 species; *Diselma* (*Fitzroya*) and *Microcachrys*, each with one species; *Athrotaxis* with 3 species; *Araucaria* and *Agathis* with 2 species each; (*Dacrydium*) with 1 species; *Pherosphæra* with 2 species; *Phyllocladus* with 1 species, and *Podocarpus* with 5 species.

It is of interest to note that while the work is entitled "A Research on the Pines of Australia," not a single representative of

the *Abieteae,* which includes the genus *Pinus* with its 70 or 80 species and "having the greatest geographical range of the whole order," is found in the territory covered by the authors.

The order of investigation has been as follows: 1. Historical botany of the species. 2. Systematic descriptions. 3. Leaves and fruits: *a,* economics; *b,* anatomy; *c,* chemistry of the oils. 4. Timber: *a,* economics; *b,* anatomy; *c,* chemistry of its products; *d,* forestry. 5. Bark: *a,* economies; *b,* anatomy; *c,* chemistry of its products. 6. Illustrations, to aid in the study of the letterpress.

In summarizing their results the authors state that "botanically the results of the research were generically greater than those specifically, for the peculiarities of structure were found to be quite characteristic of, and differing from, those of cognate genera. Chemically and economically they promise to be of great importance and to open up new fields of commercial enterprise."

They reiterate their belief in taxonomic work which considers the chemical properties and physical characters of the plant constituents along with botanical characters, and state "species so founded give practically constant results, and preserve specific characters throughout their geographical distribution." On this basis they divide the species of the large genera *Callitris* into three groups and give a table showing the probable evolution of the species.

Several new compounds are reported as present in the Australian Coniferales, but perhaps the most interesting discovery is that of a manganese compound in practically all of these trees, and which the authors believe is an essential constituent of them. This compound gives to the wood a darker color and corresponds to what has been regarded as "resin" by previous workers.

The illustrations are very numerous and very excellent, being half-tone reproductions of the living plants, photo-micrographs and color plates of microscopic sections.

PROGRESS IN PHARMACY

A QUARTERLY REVIEW OF SOME OF THE MORE INTERESTING LITERATURE RELATING TO PHARMACY AND MATERIA MEDICA.

By M. I. Wilbert.

The first anniversary of the United States Pharmacopœial Convention appears to have been the occasion for an unusual number of interesting happenings bearing on the Pharmacopœia of the United States, its scope, uses, standing in law and the progress of the present revision of the book.

Not the least important of these several items is the renewed interest that is being manifested in the scope of the Pharmacopœia and the possible uses of the book as a basis for rational instruction in materia medica.

Dr. Arthur Dean Bevan, in his address as Chairman of the Council on Medical Education of the American Medical Association, in referring to this need says:

"A limited list of drug preparations containing only those which are most useful and important, is of particular value to medical education at the present time. With the overcrowded condition of the medical curriculum, it is highly important that the small amount of time which the student has to devote to the study of drug preparations should be largely spent in obtaining a thorough knowledge of the more important drugs rather than in the obtaining of a superficial knowledge of all drugs, the majority of which are of little or no value."

The members of the Association of American Medical Colleges, present at the annual meeting held in Chicago in February, 1911, also discussed the various phases of the same question and unanimously adopted a resolution asserting that the use of a small but representative group of medicaments in teaching pharmacology and materia medica is conducive to scientific progress in therapeutics.

U.S.P. Scope.—An editorial (*J. Am. M. Ass.*, 1911, v. 56, p. 1269) discussing the scope of the next Pharmacopœia, asserts that although the Committee of Revision of the United States Pharmacopœia was appointed nearly a year ago, it has issued no report to show what progress has been made, and points out that the Committee should realize that the medical profession is interested as never before as to what should be added to, or deleted from,

the next edition of the Pharmacopœia. Physicians frequently accept at their face value claims made by interested persons regarding the therapeutic action of certain drugs, and there is a tendency on the part of certain doctors to prescribe such drugs, even after they have been admitted to the official standard and consequently included in text-books.

Another editorial (*J. Am. M. Ass.*, 1911, v. 56, pp. 1198–1199) in discussing the standardization of digitalis, asserts that one of the greatest handicaps to exact drug therapeutics is the fact that "impressions" either of the physician or of the patient play such an important part. Many other branches of medicine have been put on a truly scientific basis as a result of careful quantitative work, in either the laboratory or the clinic, or in both, but in drug therapeutics, such expressions as "the drug seemed to do good," are constantly used without the slightest attempt to measure any tangible effect, or to compare the case under treatment with one running a natural course.

A suggestion of the widespread confidence in so-called "clinical" observations is embodied in the remarks of a reviewer in the *British Medical Journal*, who, in dealing with the fifth edition of Professor Cushny's book, says:

"We cannot close the book without feeling how great would be the advantage to medicine if such an authority as Professor Cushny could be provided with access to the wards of a hospital, so that his profound pharmacological knowledge should receive more of the clinical 'salt,' which could not fail to render it the more serviceable."—*Chem. and Drug.*, 1911, v. 78, March 18, p. 50.

Scope of the German Pharmacopœia.—Ernst Gilg, in commenting on the drugs in the Ph. Germ. V, asserts that the one exception that he has to make is that the revisers of the Pharmacopœia, in selecting articles to be included in the book, have shown a woeful lack of system. He expresses the belief that it is about time that books of the importance of pharmacopœias be divorced from personal likes and dislikes, and that the scope at least be based on broad general principles that should be followed throughout.—*Ber. d. pharm. Gesellsch.*, Berl., 1911, v. 21, p. 11.

Importance of the Pharmacopœia.—Oscar Oldberg, in an address on the importance of the pharmacist to mankind, makes a number of reasonable and sane statements regarding the scope of the Pharmacopœia. He points out that the very life of pharmacy

depends upon the Pharmacopœias, and asserts that the pharmacists of America have contributed much to make the Pharmacopœia of the United States respected. Upon examination it is found that the National Pharmacopœias, whatever else they may contain, include the longest known and most thoroughly tested drugs and medicines which, having won and retained the approval of the medical profession, may be said to represent the "survival of the fittest." In that respect the Pharmacopœias are admirable. Nearly all of the twenty national Pharmacopœias, however, have published and do publish recipes for quack nostrums which men ought to know are used only by the very ignorant. Some of the nostrums put in the Pharmacopœias a century ago when actually employed by those who then practised the art of healing are still retained in these books in this age of highly developed medical knowledge when physicians treat them with the contempt such rubbish merits. —*Bulletin of Pharmacy,* May, 1911, pp. 202–203.

U.S.P. AS A LEGAL STANDARD.—As a part of their defense in a suit under the provisions of the Food and Drugs Act, Lehn & Fink enter a demurrer in which the constitutionality of the Food and Drugs Law is attacked on three separate and distinct grounds, which, briefly, are as follows: (1) Because it delegates legislative power, which under the Constitution of the United States belongs exclusively to Congress, to changing, private bodies, not created by, or subject to, the control of Congress. (2) Because it is an ex post facto law in that it specifies that the Pharmacopœia used must be one "official at the time of investigation," and (3) because the act seeks to deprive a citizen of his property and liberty without due process of law.—*Oil, Paint and Drug Reporter,* March 6, 1911, p. 7.

In overruling the demurrer of the defendant, Judge Hough points out that the food and drugs act merely decrees that medicines must conform to the implied standards under which they were sold; that if they were sold under the titles of the Pharmacopœia and the National Formulary they must conform to the standards embodied therein and that this does not constitute a delegation on the part of Congress of its legislative functions to an irresponsible body. In overruling the second contention Judge Hough held that the phrase "official at the time of investigation" must be held to mean official "at the time the goods are shipped," re-

gardless of when the actual analyses or examination might be made.—*Ibid.*, March 27, 1911, p. 9.

DIGEST OF COMMENTS.—The volume of Digest of Comments on the Pharmacopœia of the United States of America (Eighth decennial revision) and the National Formulary (Third edition) for the calendar year ending December 31, 1908, has just appeared as Hygienic Laboratory Bulletin No. 75. The book comprises a total of 564 pages and, in addition to references to criticisms on the pharmacopœia, also includes practically all the available references on the origin, composition and uses of official articles. As a reference book for the active worker in branches related to pharmacy this volume should prove to be of value, while for those directly interested in the Pharmacopœia and the National Formulary, the book should be an inexhaustible mine of suggestions for practical work and original investigations.

PROF. OLDBERG.—The remarks by Prof. Oldberg referred to above were made in connection with the celebration of the twenty-fifth anniversary of the School of Pharmacy of the Northwestern University, at which time Prof. Oldberg celebrated the twenty-fifth anniversary of his connection with the school, and retired from the deanship because of his continued ill health. To American pharmacists who have had the pleasure of meeting Prof. Oldberg, his enforced retirement from active work at this time will appeal as a great loss to American Pharmacy. Prof. Oldberg occupies a peculiar and altogether unique place in American Pharmacy and his ideals will no doubt serve as an inspiration to future generations. To those who have had the pleasure of meeting Prof. Oldberg, his quiet and dignified strength, his clear foresight and his positive ways will long appeal. His many friends who were unable to take part in the well-merited tribute recently paid him in Chicago will join in wishing him many years of continued activity for the uplift of American Pharmacy.

NEW SCHOOL OF PHARMACY.—A news item in a recent number of the *Druggists Circular* (May, 1911, p. 269) contains the announcement of a proposed department of pharmacy in connection with the Fordham University School of Medicine. The course as outlined will lead to two degrees, that of bachelor of pharmacy and that of doctor of pharmacy. The bachelor's degree will require attendance during three full terms aggregating 1,475 hours of instruction, and the subjects taught will include: general,

analytical, organic, and pharmaceutical chemistry, physics, botany, zoölogy, materia medica, pharmacy, bacteriology, experimental pharmacology, food and drug examination and clinical pathology. The subjects of instruction for the doctor's degree will include all of the above together with physiology, physiological chemistry and hygiene; attendance at anatomy lectures, demonstrations and recitations will also be required.

While, theoretically, this proposed course in pharmacy would be a decided and timely forward step in pharmaceutical education, there can be no question as to the impracticability of attempting to develop a really high-class course in pharmacy unless the university itself is in position to adequately endow the school so as to make it entirely independent of the fees to be secured.

MEDICAL EDUCATION.—An editorial commenting on an article in the *Wiener Klinische Wochenschrift,* on American Medical schools points out that the diploma mill and the commercial medical school are unknown in Europe. The ignorant but mercenary physician is justly regarded there as a grave social danger. In these directions we have much to learn from Germany. Only by the establishment and maintenance of high standards of medical education can we hope to retain the respect of other nations and to effect those "speedy and radical reforms" which conditions demand.—*J. Am. M. Ass.,* 1911, v. 56, p. 1043.

PRESENT DAY CONDITIONS OF PHARMACY.—In an address delivered at the joint meeting of the Wayne County Medical Society and the Detroit Retail Druggists Association, Henry P. Hynson of Baltimore, asserts that the hindering practices that retard the accomplishment of idealistic conditions, in the practice of pharmacy are largely due to incompetency on the part of pharmacists, and the inability on the part of some of the physicians to appreciate creditable pharmaceutical attainments or to differentiate between the true and false in pharmacy.

In commenting on the political drawbacks to progressiveness in Pharmacy, he asserts that the American Pharmaceutical Association has not had the support and interest of pharmacists it deserves. It needs stirring up; its enemies, if it has any, are not sufficiently active to give it healthy exercise. It is cursed with politics, conservative, self-preserving, holding back politics, not that "go ahead," "do something" kind, which has made so much out of the American Medical Association and done so much with it. That kind of

politics, if it is politics, would do the American Pharmaceutical Association good, a good deal of good.—*N. A. R. D. Notes,* May 11, p. 335.

Los Angeles Meeting of the American Medical Association.—The issue of the Journal of the American Medical Association for May 20, 1911, appears as the Los Angeles number, and in addition to a number of illustrations and a description of the City of Los Angeles, also contains the preliminary programme for the section meetings. From the number of papers to be presented it would appear that the Los Angeles meeting of the American Medical Association will be not only an unusually interesting one, but also well attended, and if the preliminary programme is an indication of the possibilities of the meeting itself the latter should be epoch-making.

Reformed Almanac as a Health Evangelist.—An editorial (*J. Am. M. Ass.,* 1911, v. 56, p. 1115) calls attention to the January-February number of the Virginia Health Bulletin which is issued in the form of an almanac and quotes a number of advisory aphorisms such as "A dirty well is more dangerous than a dirty kitchen," "Good water is one of the best insurance policies a family can carry," "Wire screens in the window keep crape from the door," "A light overcoat is better than a heavy cold," "It is better to sleep in the fresh air than the fresh grave," and concludes that the Virginia Department of Health deserves hearty congratulations for its success in reforming one of our oldest family institutions and converting it into an evangel of health.

The "World" Sensation.—The sensational charges of incompetency and criminal carelessness of retail druggists brought by the *New York World* have been liberally discussed in drug journals, both in this country and abroad.

Xrayser II, in commenting on the so-called "exposé" believes that rubidium iodide is just about "the limit" as a test for the accuracy of dispensing. He thinks such a test prescription could not have been better chosen if the *New York World* had intended to defeat the very object which it had in view, and in one sense this is satisfactory, for the campaign to prove that druggists as a class are inaccurate or careless dispensers or willfully fraudulent was unworthy to start with.—*Chem. and Drug.,* 1911, v. 78, April 29, p. 115.

"PATENT" MEDICINES AND PRICE PROTECTION.—An unusual amount of publicity has been given to the Supreme Court decision in connection with the direct contract price protection plan of the Dr. Miles Medicine Company.

The publicity that has been given to the decision in the lay journals cannot be said to be creditable to or of advantage to the best interests of the drug trade generally. The *Druggists Circular* (May, 1911, p. 238), in commenting on the evident tendency of the proprietary medicine branch of the retail drug business says:

"The retail drug trade has many heavy loads to carry at best; it should not unnecessarily handicap itself by appearing as a supporter and defender of the makers of nostrums whose sale is regarded as 'contrary to public policy.'"

PROPRIETARY MEDICINES IN THE UNITED STATES.—W. A. Puckner, in an article published in "*Progress*," (London, England, April, 1911), discusses the proprietary medicine situation in the United States, and points out that in many respects we in this country are far ahead of England and some of the continental countries in combating the proprietary medicine evil. This is particularly true of proprietary medicines supplied through physicians. Even the leading medical journals in Great Britain and on the continent of Europe generally, accept advertisements of the patent medicine type of proprietaries, while in the United States many if not all of the medical journals have eliminated from their advertising pages at least the worst of this type of preparations.

COCA COLA CASE.—An unusual amount of space has been devoted in American drug journals to the discussion of the now famous coca cola case. The *Druggists Circular* (May, 1911, v. 55, p. 274) reports that Judge Sanborn, who was conducting the trial, decided that the Government had failed to establish an actual violation of the letter of the food and drugs act by the coca cola manufacturers, and dismissed the case. One of the most interesting features of the trial was the large array of expert witnesses on each side. The case fell through, seemingly, because of a confusion in the minds of some of the prosecuting witnesses between what the law actually prohibited and what they thought it ought to prohibit.

N.N.R.—To insure a more wide-spread distribution of N.N.R. the American Medical Association has included a reprint of this publication as a supplement to the *Journal of the American Medical*

Association for April 15, 1911. The supplement includes all of the material published in N.N.R. and a complete index which makes the pamphlet available for reference.

An editorial (*J. Am. M. Ass.*, 1911, v. 56, p. 1112) commenting on the publication, reviews the history of the Council on Pharmacy and Chemistry, and recommends that the supplement be critically examined and especially is it urged that physicians read the rules which are printed in the front of the book, bearing in mind that these rules represent the principles on which a preparation is accepted or rejected.

PH. GERM. V.—The new German Pharmacopœia has been perhaps more actively discussed in European drug and pharmaceutical journals than any Pharmacopœia published up to the present time. Much of this discussion has been of a critical nature and some of it caustic, but all of it no doubt will prove beneficial either directly or indirectly and should go far toward making the next edition of the German Pharmacopœia even more representative of the best in the practice of medicine and pharmacy.

A recent article in the *Chemist and Druggist* (1911, v. 78, April 29, pp. 139–142) discusses the new galenical preparations that have been included in the Ph. Germ. V, and points out that only a limited number, some 20 in all new galenical preparations are represented in this Pharmacopœia.

CANADIAN FORMULARY.—An editorial review of the third edition of the Canadian Formulary of Unofficial Preparations, published by the Authority of the Ontario College of Pharmacy, in the *Chemist and Druggist* (1911, v. 78, April 29, pp. 146–147) calls attention to some of the many changes and reprints a number of new recipes and alterations.

METRIC PRESCRIPTIONS.—The conclusions of the Council of the British Medical Association on the adoption of the metric system of weights and measures by medical practitioners in prescribing and dispensing, are reprinted (*Pharm. J.*, Lond., May 6, 1911, p. 585) as follows:

"The Council recognizes that the full and complete adoption of the metric system in practice depends upon its being made the system according to which students are trained, and therefore recommends that the teaching, both theoretical and practical, in pharmacology and materia medica, should henceforth be according to the metric system." The Council also outlines a transitional

procedure suggested for adoption by medical practitioners and presents the following recommendations:

1. That the teaching both theoretical and practical in pharmacology and materia medica should henceforth be according to the metric system.

2. That medical practitioners should now write their prescriptions in metric form, and that, to facilitate this, mixtures should be ordered in sixteen-dose bulk, and pills or powders should be ordered in tens.

3. That dispensers should be instructed that every prescription written without symbols is to be dispensed in metric measures.

4. That the divisions should take the matter into consideration, and, if they think desirable, confer with the pharmacists in their area.

PHARMACEUTICAL PREPARATIONS.—The chemical laboratory of the American Medical Association (*J. Am. M. Ass.*, 1911, v. 56, p. 1344) presents an additional contribution on commercial tablets of bismuth, opium, and phenol, and graphically illustrates the composition of these tablets as claimed by various manufacturers and the composition actually found in the laboratory.

An editorial in the same *Journal* (pp. 1334–1335) points out that for some years past pharmaceutical houses have put out in tablet form an enormous number of combinations of drugs of real or fancied value. In many instances the combinations are not suited to the tablet form and it is not surprising that many of these tablets do not conform to the composition that is claimed for them. It is not to be inferred that the manufacturers willfully put up products that are false to label, but rather that many of the combinations are pharmaceutical impossibilities. That is to say, it is pharmaceutically impossible—or at least commercially impracticable—to manufacture, in tablet form some of the combinations that are listed in the manufacturers' catalogues.

DOSES.—An editorial (*J. Am. M. Ass.*, 1911, v. 56, p. 1114) discusses the determination of the proper dose of medicine and quotes from Manquat's " Principles of Therapeutics " his opinion regarding the fallacy of undue dependence on medication. The editorial concludes that the principles as stated are correct. The drug is to be regarded only as a staff to assist lightly over the difficult places, and not as a strong crutch to bear the whole burden. First, throw away the pack and the other impediments; give entire

freedom of action to all natural forces; assist by the staff only as actually needed and the steep will be surmounted.

ADRENALIN.—A news note (*Oil, Paint and Drug Reporter,* May 8, 1911, p. 28H), points out that in the final hearing on the alleged infringement of the Takamine patents on glandular extractive products, Justice Hand of the United States Circuit Court found for the complainant on nine of the sixteen claims in the patent specifications in question, in one cause of action, and on four of the eight claims in the other cause. The news item also points out that not all of the claims of either patient were at issue, and that Justice Hand held that the case had to do only with the patent on the product and not that on the process.

EPINEPHRINE.—An editorial in discussing the need for a generic name for the blood-pressure-raising substance of the suprarenal gland, points out that there are thirty or more different brands of solution of this substance on the market, five being in this country alone. The products are identical so far as their chief constituent is concerned; they differ, however, as to the solvent and preservative used. The processes of manufacture of some of them are patented; all of them are sold under trade names. The editorial concludes that it cannot be too strongly emphasized that "Epinephrine" is a true scientific name for the active principle of the suprarenal gland, and that it should be used on all occasions when the active principle and not some particular firm's make is referred to.—*J. Am. M. Ass.,* 1911, v. 56, p. 901.

ASPIRIN.—The Bayer Co., Ltd., in discussing trade-mark rights, points out that as a rule an important trade-mark is the property of a wealthy firm, but none the less it is something that has to be worked for; behind it there is brain and there is energy, and it has had to be paid for. The law supports its rights, and anyone infringing them does so at his peril.—*Pharm. J.,* Lond., 1911, v. 86, March 11, p. 358.

M. Meldrum, in a communication in which he discusses the abuses that have grown out of trade-mark rights in England, asserts that honesty, commercial honesty at least, has become more or less relative. He contends that the royalty or profit of trade-marked articles is out of all proportion to the price paid and the modicum of brain and energy supplied by the holder of the trade-mark, and thinks it high time to consider the possibility of placing some check on the present methods of granting trade-marks or

trade-names in so far as the practice of pharmacy is affected thereby.—*Ibid.*, March 25, p. 424.

BENETOL.—An unsigned article in the "Propaganda for Reform" discusses the claims that are being made for benetol, and concludes that the claim made in the advertising matter that benetol is a newly discovered compound is absurd. It is not a chemical compound but a simple solution of the well-known substance alphanaphthol in the still better-known substances, glycerin, soap and water.—*J. Am. M. Ass.*, 1911, v. 56, pp. 1128–1129.

CAFFEINE.—The article on Therapeutics in the *Journal of the American Medical Association* for May 6, 1911 (v. 56, pp. 1328–1331) is devoted to a discussion of the therapeutics of caffeine. The history of this chemical is reviewed and the pharmacology and therapeutics discussed at some length. Caffeine-containing drugs such as guarana and kola are also discussed.

CARGENTOS.—Cargentos is claimed to be a preparation of colloidal silver containing 50 per cent. of metallic silver in the form of oxide, together with a sufficient amount of modified casein to maintain the silver oxide in colloidal form when in solution.

Cargentos is prepared by precipitating an alkaline solution of silver caseinate and silver oxide by an acid, dissolving the precipitate in an alkali, dialyzing the resulting solution against running water and evaporating the remaining colloidal solution to dryness in vacuo.—*J. Am. M. Ass.*, 1911, v. 56, p. 1460.

COLCHICINE.—Hermann Fühner (*Archiv für Experimentelle Path. u. Pharm.*) considers it necessary to apply biological as well as chemical tests for toxicological determinations of colchicine, since colchicine resists the putrefactive processes of the dead body for several months and certain animal decomposition products give color reactions similar to those of the alkaloid.

CYCLOFORM.—Cycloform is the isobutyl ester of p-amidobenzoic acid, which forms a white crystalline powder, slightly soluble in water, easily soluble in alcohol, ether and benzene. It is a powerful local anæsthetic, and has but little toxic action. It is recommended in the form of a 5-per-cent. ointment or dressing, and is useful in certain skin diseases.—*Chem. and Drug.*, 1911, v. 78, April 29, p. 151.

DIGITALIS.—An editorial (*J. Am. M. Ass.*, 1911, v. 56, pp. 1198–1199) in discussing the standardization of digitalis, calls attention to Hyg. Lab. Bull. No. 74, in which Hale points out that the

view adopted by most pharmacopœias and by the Brussels Conference that leaves of the second years' growth are more potent than those of the first year appears to be founded on tradition only. The view, or rather impression, that the leaves of wild growing plants are more potent than those of the cultivated plants also does not rest on a scientific basis. The editorial concludes that a perusal of this Bulletin will place the practitioner in a much better position to form a judgment of the character of the digitalis preparation he uses and that the work which it embodies should be of value in improving the pharmacopœial requirements of this important drug.

DIGLYCODISALICYLIC ACID.—It is claimed that diglycodisalicylic acid $O(CH_2.COOC_6H_9.COOH)_2$, possesses the full physiological activity of salicylic acid, and has certain advantages over acetylsalicylic acid for therapeutic use. It forms shining, odorless leaflets, with a faint acid taste; it melts at 168–170° C.—*Pharm. J.*, Lond., 1911, v. 86, April 15, p. 498.

OVOGAL.—Ovogal is a combination of bile acids with egg albumen. It is a greenish yellow powder, insoluble in water, dilute acids, ether, benzol, fats, etc. Alcohol and acetone do not dissolve it, but after long action remove from it small amounts of the bile acids. Alkalies dissolve ovogal, splitting it into albumen and bile acids (Glycocholic acid and taurocholic acid).—*J. Am. M. Ass.*, 1911, v. 56, p. 1460.

OXYGEN.—A report of the Council on Pharmacy and Chemistry outlines a description with tests for compressed oxygen (*J. Am. M. Ass.*, 1911, v. 56, p. 813). An editorial (*ibid.*, p. 820) points out that this report describes an article which so far is one of the few things that have not been appropriated by the proprietary medicine houses. Oxygen is often depended upon to save life that is at its lowest ebb, and the purity of the substance is a most important matter, more important than the purity of many official drugs.

PERISTALTIN.—Peristaltin is a glucoside of the formula $C_{14}H_{18}O_8$, extracted from cascara sagrada. It is a yellow powder, soluble in water and in dilute alcohol. It is said to have a marked purgative action.—*Chem. and Drug.*, 1911, v. 78, April 29, p. 151.

PHENOL.—An interesting controversy has grown out of the Ph. Germ. V requirement that phenol should react neutral with litmus paper. Ernst Schmidt (*Arch. d. Pharm.*, 1911, v. 249, pp. 236–240) discusses some of the attacks that have been made on the pharmacopœial statement, and points out that while ordinary

crystalline carbolic does react distinctly acid with litmus paper, it is readily shown that this reaction is not due to phenol but to a contaminating acid, and that ordinary phenol when neutralized with a few drops of alkali, and absolutely pure phenol will comply fully with the Ph. Germ. V requirements.

PANTOPON.—A report of the Council on Pharmacy and Chemistry (*J. Am. M. Ass.*, 1911, v. 56, pp. 1278–1279) discusses pantopon, and points out that this is a preparation of opium, containing a mixture of hydrochlorides of the various opium alkaloids, as extracted directly from the drug with more or less purification. The Council holds that the name does not effectively suggest that the preparation is a mixture of opium alkaloids and that it does not protect the public against habit-forming and other dangers inherent in such mixtures.

PAPINE, a more or less similar preparation, is also commented upon, and an editorial (p. 1268) concludes that pantopon and papine are a menace to the public, and that in spite of the testimonials for both these products it would not be amiss if physicians would continue to use the drugs, morphine and opium, whose value—and dangers—they know.

PHOSPHORUS.—An editorial discussing the possible elimination of white phosphorus in the production of matches, points out that there are about 3,500 employees in 15 of the 17 match factories in the United States. Of 3,383 whose occupation was specified 65 per cent. are exposed to phosphorus fumes; 95 per cent. of the 1,395 women are so exposed. An intensive study of 3 factories was made, and eighty-two cases of necrosis were discovered.—*J. Am. M. Ass.*, 1911, v. 56, pp. 1038–1039.

SACCHARIN.—A widely published news note reports that the Secretary of Agriculture has issued a decision, based upon a finding of the Referee Board of Consulting Scientific Experts, which forbids the use of saccharin in food on and after July 1 next. The decision is under the Food and Drugs Act and will prohibit the manufacture or sale in the District of Columbia or the Territories of foodstuffs containing saccharin, as well as interstate commerce in such footstuffs.

SANATOGEN.—An answer to an inquiry points out that sanatogen is said to contain 95 per cent. of casein so that 30 gm. (1 ounce) of this preparation would contain approximately 28.5 gm. of protein, which would yield 117 calories. This is the equivalent in round

numbers of one-third of a pint of milk or one and one-half eggs. The same amount of energy would be given by an equal weight of starch or by one and one-fifth as much of flour or other cereals. The writer concludes that sanatogen like most preparations of this class while a food is a ruinously expensive one.—*J. Am. M. Ass.*, 1911, v. 56, p. 1345.

STROPHANTHUS.—J. Haycock outlines an assay method for strophanthus seeds, in which after eliminating the oil by means of ether, he extracts the seed with 70 per cent. alcohol and treats the resulting extract with sulphuric acid by means of heat to change the strophanthin into strophanthidin. The strophanthidin is subsequently washed out, by means of chloroform, dried at a temperature below 65° C. and weighed. The resulting yield divided by 0.365 gives the amount of strophanthin present.—*Pharm. J.*, Lond., 1911, v. 86, April 29, pp. 553–554.

XERASE.—Xerase is a mixture of a specially prepared dry beer yeast 150 parts, grape sugar (dextrose) 20 parts, white bole 125 parts and a mixture of nutritive salts 3 parts. Xerase is a yellowish-gray, powder, having a weak odor of yeast and a salty taste. It is only slightly soluble in water. It resists ordinary atmospheric conditions.—*J. Am. M. Ass.*, 1911, v. 56, p. 1460.

THE CITY OF WASHINGTON BRANCH OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

The stated meeting of the City of Washington Branch of the American Pharmaceutical Association for April was devoted to a general discussion on matters of interest to pharmacists.

Dr. Murray Galt Motter discussed the use and advantage of a restricted materia medica and called attention to the efforts that have been and are being made in this country to bring about reforms in therapeutic practices. He pointed out that the need for limiting instruction in materia medica subjects to a restricted list of substances is being recognized by teachers in medical schools and that the general trend of this tendency is well illustrated by the resolution adopted by teachers in the medical schools in Philadelphia at an informal conference called by Prof. Joseph P. Remington, on February 3, 1908.

This resolution, in part, reads as follows:

" *Resolved,* That it is of the utmost importance for accuracy in prescribing, and in the treatment of disease, that students of medicine be instructed fully as to those portions of the United States Pharmacopœia which are of value to the practitioner."

To illustrate the fact that the need for restricting the materia medica taught in medical schools is being recognized outside of our own country, Dr. Motter exhibited a list of titles adopted by the teachers and examiners of the University of London as a basis for examining candidates for degrees as well as licensure. This list was furnished him by Dr. A. R. Cushny who, in a recent interview, assured Dr. Motter that unless the forthcoming edition of the British Pharmacopœia was more limited in scope, and more representative of the best that is available in materia medica, British teachers of the latter subject would find it necessary to ignore the Pharmacopœia entirely, and limit their teaching to the restricted list of medicaments mutually agreed upon.

Dr. Motter expressed the belief that much the same conditions prevail in our own country, and that unless the scope of our recognized National Standards can be restricted to a reasonable number of articles, the books themselves must be ignored entirely by medical schools. He characterized the present Pharmacopœia of the United States as an illustration of " would-be science," the National Formulary as " a hybrid between science and commercialism," and N. N. R. as " a sop to the commercial Cerberus."

In conclusion he pointed out that in the time allotted to materia medica in the present medical curriculum, it is practically impossible to discuss, intelligently, more than a limited number of the more important medicaments and that the resolutions adopted at the recent conferences in Chicago, attended by representatives of various organizations, indicate a rather wide-spread interest in a more restricted materia medica. As an illustration of the tendency manifested, he read the following preamble and resolution adopted at the annual meeting of the Association of American Medical Colleges, held in Chicago, February 27–28, 1911 (*J. Am. M. Ass.*, Chicago, April 8, 1911, v. 56, p. 1065).

" WHEREAS, The time devoted to the study of pharmacology, materia medica and therapeutics is necessarily limited, and

" WHEREAS, The thorough knowledge of a small but representative group of medicaments is conducive to scientific progress in therapeutics; therefore, be it

"*Resolved,* That the Association of American Medical Colleges commends to the attention of medical educators and examiners, the limited materia medica lists published by the joint committee of the Council on Medical Education, and of the National Confederation of State Medical Examining and Licensing Boards, and the Chicago Medical Society.

"*Resolved,* That the association urge upon the colleges and the examining boards the necessity for the recognition of the principle underlying these lists, and for the early adoption by the boards of a materia medica list to which licensure examinations shall largely be confined."

The subject was further discussed by Messrs. Kalusowski, Flemer, Hilton, Hunt, and Wilbert, and the general trend of much of the discussion suggested the desirability of having the Pharmacopœia of the United States restricted to important medicaments so that it might serve as the basis for materia medica instruction in medical schools.

Dr. Reid Hunt expressed the belief that, at present, the physician's part in the revision of the Pharmacopœia is but a minor one, and that much of what the better informed medical men might have to say is discounted by the fictitious value that is accorded to the reputed needs of the less conscientious, or less competent practitioner who is willing to continue the use of substances that appear to have no recognizable medicinal value.

Mr. M. I. Wilbert called attention to some of the recent comments that have appeared on this same subject, and quoted Dr. D. L. Edsall who, in his address as chairman of the Section on Pharmacology and Therapeutics of the American Medical Association, points out that the Pharmacopœia of the United States is now used by but few teachers of materia medica and is little known to medical practitioners.

"Revision may make it better or may make it even worse so far as its usefulness to students and practitioners is concerned, according as it is intended to make it purely a reference book or also a practical working book; in other words, whether it is revised upward or downward.

"Unless marked changes are made in it, however, it will remain as it is now, chiefly a name to the vast majority of the medical profession and will render no appreciable service in improving therapeutic practice."

Mr. Samuel L. Hilton reported a series of experiments to determine the most desirable method of procedure for making Magma of Magnesia N.F. He exhibited a number of samples and presented a formula for a preparation that contains considerably more Magnesium Hydroxide than does the one at present official. (See p. 268.)

The Secretary exhibited a number of preparations, made by Mr. Otto Raubenheimer, illustrating some of the additions and changes embodied in the Ph. Germ. V.

He also exhibited a number of samples of Solution of Peptonate of Iron with Manganese N.F., made by Mr. John K. Thum, according to a formula proposed for the N.F., showing the possible variations resulting from slight modification of the method of procedure. Mr. Thum presents a modification of this formula, but ventures the opinion that the formula and method of making proposed by Dunning, in 1905, give much more satisfactory results.

Mr. S. L. Hilton, as Secretary of the Board of Pharmacy of the District of Columbia, called attention to the objections that have been made to a recent ruling of the board that the local dental supply depots could not legally sell narcotic drugs. The subject was discussed at some length, and on motion of Mr. Bradbury, seconded by Mr. Richardson, it was agreed that "the members of the City of Washington Branch of the American Pharmaceutical Association endorse the present efforts of the Board of Pharmacy to enforce the pharmacy laws of the District of Columbia."

M. I. WILBERT, *Secretary.*

PHILADELPHIA COLLEGE OF PHARMACY

The ninetieth annual commencement of the Philadelphia College of Pharmacy was held in the American Academy of Music on Thursday evening, May 25. After a prayer by the Rev. Edwin S. Carson, the degrees were conferred by the President, Howard B. French.

The following are the names of those who received the degree of Doctor in Pharmacy (P.D.), with the subjects of their theses:

Name.	*Thesis.*	*Residence.*
Allison, James Harrison,	Ferri Sulphas Exsiccatus,	Pennsylvania
Atkins, John Walt,	Cacao,	Pennsylvania
Baradofsky, Samuel,	Action of Iodine on Starch,	Pennsylvania
Beckley, Norman Clyde,	Acidum Sulphuricum Dilutum,	Pennsylvania

Name.	*Thesis.*	*Residence.*
Bellitz, Miss Jennie,	Colocynth,	Russia
Berry, DeWilton Snowden,	Drug Store Management,	Maryland
Bloes, Lee Otto,	Vanishing Cold Creams,	Pennsylvania
Bollinger, Chester Eugene,	Physiological Testing of Ointments,	Pennsylvania
Bradley, Kersey Elmer,	Sterilization of Cocaine Solutions,	Pennsylvania
Bradley, Oscar Samuel,	Ergot,	Pennsylvania
Bricker, Robert Osborn,	Cultivation of Atropa Belladonna,	New Jersey
Brush, Franklin Cotton,	Rhus Glabra,	Pennsylvania
Burtt, Lloyd,	Determination of Stearic Acid,	Pennsylvania
Butler, John Albert,	Petrox,	Pennsylvania
Calvin, William Ray (P.C.),	Liquor Potassii Arsenitis,	Pennsylvania
Carey, George Warner,	Hydrastis Canadensis,	Pennsylvania
Carpenter, Pierce Raymond,	Ointment of Mercuric Nitrate,	Pennsylvania
Carrington, Arthur Hudson,	Expressed Almond and Peach Kernel Oil,	New York
Christopher, Louis Edward,	Diluted Hydrochloric Acid,	Massachusetts
Cohen, Philip,	Sapo Mollis,	Pennsylvania
Costenbader, Clayton Elmer,	Hydrastis Canadensis,	Pennsylvania
Crawford, William Burton,	Mel,	Pennsylvania
Davis, Elliot Veil,	Rhamnus Frangula,	Pennsylvania
Donnelly, John Henry,	Liquor Sodae Chlorinatae,	Pennsylvania
Edwards, David Everett,	Rhamnus Purshiana,	Pennsylvania
Eisman, David William,	Olive Oil,	Russia
Ennis, James Henry, Jr.,	Ether,	Pennsylvania
Farrell, Walter John,	Fluidextract of Parsley Root,	New York
Friedman, Nathan Meyer,	Essence of Pepsin N.F.,	Pennsylvania
Gaskell, Walter James,	Elixir Digestivum Compositum,	Pennsylvania
Gault, Claude Ellsworth,	Petrolatum,	Ohio
Gordon, David Harris,	Bay Rum,	Georgia
Greaves, Alvah Frank,	Peanut Oil,	New York,
Greeninger, Charles Wenger (P.C.),	Elixir Ferri, Quininae et Strychninae Phosphatum,	Pennsylvania
Gregory, Harrison W.,	Soft Gelatin Capsules,	Pennsylvania
Haimowitz, Morris,	Calcium Oxalate in Podophyllum,	Pennsylvania
Hancock, Clyde Raymond,	Aletris Farinosa,	Pennsylvania
Hart, Farel,	Solidified Alcohol,	Ohio
Heacock, Clifton Elwood,	Fluidextract of Kola,	Pennsylvania

Name.	*Thesis,*	*Residence.*
Held, John C., Jr.,	Milk—Its Cereal Modification,	Pennsylvania
Hemminger, Robert Elton,	Show Globe Colors,	Pennsylvania
Hendricks, Lyle Vallington,	Aqua Hydrogenii Dioxidi,	Oregon
Herr, Clarence Sloan,	Steel,	Ohio
Hildebrand, Charles Pinkney,	Maize Oil,	North Carolina
Hinski, Herman Leo,	Disastase,	Pennsylvania
Hosfeld, Herman Francis,	Bacillus Acidi Lactici,	Ohio
Johnson, David Emil,	Fluidextracts of Celery and Angelica Root,	Pennsylvania
Kaehler, Carl Frederick,	Sulphuric Acid,	Pennsylvania
Kreamer, Oscar Perry,	Prescription Difficulties,	Pennsylvania
Lathrop, William Norman,	A Saponaceous Dentrifrice Elixir,	Connecticut
Lemen, Hermann Light,	Acidum Hydriodicum Dilutum,	Maryland
Lightner, Walter Irvin,	Chloroform,	Pennsylvania
Longaker, Louis,	Unguentum Resorcini Compositum,	Pennsylvania
Lowe, Edgar Walthour,	Advertising as Applied to Pharmacy,	Pennsylvania
Lynn, Ellsworth Waldemar,	Rhamus Purshiana,	Pennsylvania
McNutt, William Clyde,	Liquor Calcis,	Pennsylvania
Marshall, William Elisha,	Galla,	Pennsylvania
Martin, Joseph Stanislas,	Cultivation of Nicotiana Tabacum in Lancaster, County, Pa.,	Pennsylvania
Martz, Samuel George Washington,	Aloes and Aloin,	Pennsylvania
Melville, Frederick Thornton,	Tobacco and Smokecraft,	Pennsylvania
Messinger, Martin Lester,	Pilocarpus — Its Preparation and Action,	Pennsylvania
Miller, Jacob J., Jr.,	The Physician's Prescription—To Whom Does it Belong?	Pennsylvania
Miller, Noble Collins,	Medicated Waters,	Pennsylvania
Millrood, Samuel,	Fluidextract of Gentian,	Russia
Moore, Albert Worthington,	Alcohol as Sold by Retail Pharmacists,	New Jersey
Morley, John Edward,	Antidiphtheric Serum,	New York
Morris, Edwin Kramer,	Tinctura Iodi,	Virginia
Muthig, Charles,	Sources of Salicylic Acid and Its Uses,	New York
Myers, Louis Henry,	Hydrastis,	Pennsylvania
Neal, Clark (P.C.),	Theobroma Cacao,	Pennsylvania
Oswald, Lewis William,	Glycerin,	New York

Name.	*Thesis.*	*Residence.*
Patterson, George William, Jr.,	Phthalic Acid,	Pennsylvania
Patton, Frank Oakman,	Acidum Nitricum Dilutum,	Massachusetts
Paxson, Leon Kirk,	The Physical and Chemical Constants of Goose Fat,	Pennsylvania
Penney, Theodore Rufus,	Casein Creams,	Oklahoma
Pettit, Albert Worrell,	Tooth Washes,	New Jersey
Phillips, Robert Earl,	Label Paste,	Pennsylvania
Rachmil, Albert,	The Ethics of Harmony Between Two Allied Professions,	Pennsylvania
Ralston, John Morrow,	Syrup of Chocolate as a Vehicle,	Pennsylvania
Rapaport, Julius George,	Strophanthus Kombe,	Russia
Read, Thomas Preston,	Medicine as an Economic Science,	Pennsylvania
Rice, Wallace Stoddard,	Pilocarpus,	Pennsylvania
Riley, Frank Louis,	Fermentation,	Maine
Rogers, Edson William,	Olive Oil,	New Jersey
Rose, William Wilson,	Capsicum in Tincture of Ginger,	Delaware
Rosenberg, Samuel (P.C.),	Camphor Cream,	Pennsylvania
Rothrock, Roswell John,	Fluidextract of Juniper,	Pennsylvania
Rovner ,Israel,	Solution of Calcium Creosote,	New Jersey
Runyan, Edwin Percy,	Theatrical Cold Creams,	Pennsylvania
Ryan, Edward Henry		Pennsylvania
Sammons, George Israel,	Cannabis Indica,	Pennsylvania
Sands, Paul Douglass,	The Determination of Phosphoric Acid,	Pennsylvania
Sasse, Arno Richard,	Liquid Petrolatums,	Missouri
Schauermann, Howard George,	Glycerinum,	Pennsylvania
Schell, Frank Wacker,	Color Standards for Galenicals,	Pennsylvania
Schmidt, Miss Selma L. (P.C.),	The Testing of Balsam of Peru,	Ohio
Segal, Nathaniel Jules,	Opium,	Pennsylvania
Shaker, Elias,	The Production of Lactic Acid by Tablets Under Differing Conditions,	New York
Shearer, George Keyworth,	Goldner's Test for Cocaine,	Pennsylvania
Shiles, Stanley Andrew,	Acacia and Its Uses,	Delaware
Shugars, George Forrester,	Trillium and Its Fluidextracts,	Pennsylvania
Smith, Edgar Chellis,	Label Paste,	Pennsylvania
Smith, Robert Edgar, Jr.,	Cactus Grandiflorus,	Florida
Snyder, Marshall Prescott,	Essence of Pepsin,	Pennsylvania
Somers, Wilbert,	Cologne Water,	New Jersey

Name.	*Thesis.*	*Residence.*
Southard, Paul Harriman,	The Glycerophosphates,	Ohio
Steelman, Ethelbert,	Syrup of Hydrochlorphosphates,	Indiana
Stein, Morris,	Cold Creams,	Pennsylvania
Strauss, Raymond Albert,	Animal Diastase,	Pennsylvania
Sylvester, William Grimes,	Phenolphthalein—Its Action in the Body,	Pennsylvania
Tanner, Thomas Bernard,	Ergota,	Pennsylvania
Temperton, Leith Sylvester,	Solution of Iron Peptonate and Manganese,	Pennsylvania
Udell, William Howard,	Cocaine and Its Legislation,	Pennsylvania
VanInwegen, Frank P. (P.C.),	Hamamelis Folia,	New York
Verstine, Samuel Philip,	Crystallization,	Pennsylvania
Watkins, Llewellyn James,	The Dispensing Physician,	Pennsylvania
Wear, John,	Liquor Ferri Albuminati,	Pennsylvania
Wepfer, Adolph Gustav,	Baptisia Tinctoria,	Wisconsin
Winter, John Coleman,	Panax Quinquefolium,	Pennsylvania
Wolford, James Scott,	The Abuse of Narcotics,	Pennsylvania
Young, Frank Aloysius,	Cod Liver Oil,	Pennsylvania

The following are the names of those who received the degree of Pharmaceutical Chemist (P.C.), together with the subjects of their theses:

Name.	*Thesis.*	*Residence.*
Charleston, Julius Lewis,	A Tasteless Castor Oil,	Pennsylvania
Duvoisin, Frank,	Carbon Tetrachloride,	Pennsylvania
Flickinger, William Gordon,	Fabrica Farinae,	Pennsylvania
Graçff, William Lewis,	Desiccated Thyroid Glands,	Pennsylvania
Greaves, Mrs. F. Hunter,	Diluted Hydrobromic Acid,	North Dakota
Hartenstein, Earl Stewart,	Liquor Ferri Chloridi,	Illinois
Hedges, Francis Xavier,	Tragacanth and Indian Gum,	Pennsylvania
Kramer, Raymond John,	Tinctura Ferri Chloridi,	W. Virginia
Langton, Daniel Joseph,	Pepsin,	Pennsylvania
Shoemaker, Clayton French, Jr.,	Chemistry of the Vanilla Beans and Manufacture of the Extract,	Pennsylvania

The following were awarded certificates of proficiency in chemistry: Allen, James Henry (P.D.); Denzler, Edward O.; Duvoisin, Charles; Haines, Frank Earl; and Swain, J. Harry.

The certificate in the Pure Food and Drug Course was awarded to Peter Amsterdam, P.P. There were 137 candidates for the degrees *in course*, coming from the various States and countries as follows: Connecticut, 2; Delaware, 2; Florida, 1; Georgia, 2; Indiana, 1; Illinois, 1; Maine, 1; Maryland, 2; Massachusetts, 2; Missouri, 1; New Jersey, 7; New York, 8; North Carolina, 1; North Dakota, 1; Ohio, 6; Oklahoma, 1; Oregon, 1; Pennsylvania, 90; Russia, 4; Virginia, 1; West Virginia, 1, and Wisconsin, 1.

The address to the graduating class was made by Hon. Willis L. Moore who delivered an interesting discourse upon "the weather," discussing some of the more interesting phenomena relating to the physics of the atmosphere and distinguishing between hurricanes, cyclones, tornados and thunder storms.

AWARD OF PRIZES.

The following students received the grade of distinguished: Pierce R. Carpenter and Herman L. Hinski. The grade of meritorious was attained by John A. Butler and Morris Haimowitz.

THE WILLIAM B. WEBB MEMORIAL PRIZE, a gold medal and certificate offered for the highest general average in the branches of committee, operative pharmacy and specimens, was awarded to Pierce R. Carpenter, the presentation being made by Mr. Walter A. Rumsey. The following graduates received honorable mention in connection therewith: Franklin Brush, John A. Butler, Charles P. Hildebrand, Herman L. Hinski, William E. Marshall, Edwin K. Morris, William W. Rose, Paul D. Sands, William G. Sylvester, Thomas B. Tanner, and Adolph G. Wepfer.

THE CHEMISTRY PRIZE, $25, offered by Prof. Samuel P. Sadtler, for knowledge of chemical quantitative analysis, was awarded to Edwin K. Morris. The following graduates received honorable mention in connection therewith: Herman L. Hinski and George K. Shearer.

THE MATERIA MEDICA PRIZE, $25, offered by Prof. Clement B. Lowe, for the best examination in materia medica and in the recognition of materia medica specimens with a meritorious thesis, was awarded to Edwin K. Morris. The following graduates received honorable mention in connection therewith: James H. Allison, John A. Butler, Pierce R. Carpenter, Morris Haimowitz,

Charles P. Hildebrand, Herman L. Hinski, Samuel G. W. Martz, Charles Muthig, Leon K. Paxson, and Adolph G. Wepfer.

THE MICROSCOPICAL RESEARCH PRIZE, a Zentmayer Microscope, offered by Prof. Henry Kraemer for the most meritorious thesis involving original microscopic work, was awarded to Julius G. Rapaport. The following graduates received honorable mention in connection therewith: Jennie Bellitz, Kersey E. Bradley, Morris Haimowitz, Clyde R. Hancock, Herman F. Hosfeld, and Adolph G. Wepfer.

THE ANALYTICAL CHEMISTRY PRIZE, $25, offered by Prof. Frank X. Moerk, for the best work in qualitative and quantitative analysis, was awarded to Herman L. Hinski. The following graduates received honorable mention in connection therewith: John A. Butler, Pierce R. Carpenter, Walter J. Farrell, Charles P. Hildebrand, and William E. Marshall.

THE OPERATIVE PHARMACY PRIZE, $20 in gold, offered by Prof. Joseph P. Remington, for the best examination in operative pharmacy, was awarded to Thomas B. Tanner, the presentation being made by Dr. E. Fullerton Cook. The following graduates received honorable mention in connection therewith: John W. Atkins, Norman C. Beckley, Franklin C. Brush, David E. Johnson, Oscar P. Kreamer, and Marshall P. Snyder.

THE MAISCH PHARMACOGNOSY PRIZE, $20 in gold, established by the late Jacob H. Redsecker, of Lebanon, Pa., and continued as a memorial by his nephew, Jacob Redsecker Beetem, for histological knowledge of drugs, was awarded to William W. Rose, the presentation being made by Mr. Clayton F. Shoemaker. The following graduates received honorable mention in connection therewith: Philip Cohen, Morris Haimowitz, Herman L. Hinski, Edwin K. Morris, and Adolph G. Wepfer.

THE MAISCH BOTANY PRIZE, $20, offered by Mr. Joseph Jacobs, of Atlanta, Ga., for the study of native medicinal plants, was awarded to Adolph G. Wepfer, the presentation being made by Dr. Adolph W. Miller. The following graduates deserve honorable mention in connection therewith: Jennie Bellitz, Morris Haimowitz, Clyde R. Hancock.

THE THEORETICAL PHARMACY PRIZE, a Troemmer Agate Prescription Balance, established by the late Mahlon N. Kline for the best examination in theory and practice of pharmacy, was awarded to Pierce R. Carpenter, the presentation being made by Mr. C.

Mahlon Kline. The following graduates received honorable mention in connection therewith: Samuel Baradofsky, John A. Butler.

THE COMMERCIAL TRAINING PRIZE, $20 in gold, offered by Prof. Joseph P. Remington to the graduate who passed the best examination in commercial training at the final examination for the degree, was awarded to Edwin P. Runyan, the presentation being made by Mr. Warren Poley. The following graduates received honorable mention in connection therewith: John A. Butler, Pierce R. Carpenter, James H. Ennis, Jr., Morris Haimowitz, Herman L. Hinski, Edgar W. Lowe, Frank O. Patton, Roswell J. Rothrock, Clayton F. Shoemaker, Jr., and Robert E. Smith.

THE INSTRUCTOR'S PRIZE, $20, offered by the Instructors of the College for the highest term average in the branches of pharmacy, chemistry, and materia medica, was awarded to Samuel G. W. Martz, the presentation being made by Prof. Freeman P. Stroup. The following graduates received honorable mention in connection therewith: Samuel Baradofsky, Herman L. Hinski, and Edwin K. Morris.

THE PHARMACY QUIZ PRIZE, one year's membership in the American Pharmaceutical Association, offered by Prof. Charles H. LaWall for the best term work in theory and practice of pharmacy, was awarded to Samuel G. W. Martz. The following graduates received honorable mention in connection therewith: Samuel Baradofsky, Arthur H. Carrington, Edwin K. Morris, Charles Muthig, and Edwin P. Runyan.

THE KAPPA PSI FRATERNITY PRIZE, a gold medal, offered by the Eta Chapter of the Kappa Psi Fraternity to the graduate making the highest general average during his or her senior year at the College, was awarded to Pierce R. Carpenter, the presentation being made by Dr. George L. Holstein. The following graduates received honorable mention in connection therewith: John A. Butler, Morris Haimowitz, and Herman L. Hinski.

THE ATHLETIC PRIZE, a silver loving cup, offered by Henry S. Godshall, P.D., and John J. Bridgeman, P.D., to the member of the graduating class who, at commencement, stands with the greatest number of points in athletics to his credit and has obtained the highest general average amongst those participating in athletics at the College, is awarded to Clyde R. Hancock, the presentation being made by Dr. William Schleif. The following graduates deserved honorable mention in connection therewith: Kersey E. Bradley,

Robert O. Bricker, Louis E. Christopher, A. F. Greaves, Farel Hart, Herman F. Hosfeld, A. W. Moore, John E. Morley, Louis W. Oswald, Frank O. Patton George K. Shearer, John Wear, and Frank A. Young.

In addition to those above mentioned, a special prize was offered this year. The will of the late George Washington Hayes of Lebanon, stipulated that the gold watch, which he had received as a member of the class of 1882, from Messrs. Allaire, Woodward & Co., for his work on powdered drugs, was to be awarded to the most distinguished student of the class of 1911. This prize was awarded to Pierce R. Carpenter, the presentation being made by Mr. Joseph L. Lemberger.

EIGHTH INTERNATIONAL CONGRESS OF APPLIED CHEMISTRY

At the instance of the representatives of more than 4,000 American chemists, the Congress of the United States by Joint Resolution on March 4, 1909, authorized the President of the United States to invite the Eighth International Congress to meet in the United States. This invitation was extended to the Seventh International Congress in London, June 2, 1909, by the Honorable Whitelaw Reid, Ambassador from the United States to Great Britain, and enthusiastically and unanimously accepted.

The thirteen Delegates sent by the Government of the United States to the Seventh Congress were appointed by that Congress as the nucleus of the Organizing Committee for the Eighth Congress, with power to add to their number.

On June 11, 1910, the gentlemen forming this nucleus met and organized for the despatch of business, and at a meeting held August 26, 1910, greatly increased the membership of the Organizing Committee. These Official Representatives are primarily charged with the responsibility of seeing to it that none of the interests in their respective jurisdictions are overlooked at the Eighth Congress, and that all are properly represented thereat; they also serve as an official avenue of communication between their respective Governments and the Eighth Congress. This enlarged Organizing Committee, on October 8, 1910, provided for

a Constitution and By-Laws, and further provided for 25 scientific Sections and Subsections. One of these—on the leather industries —still remains to be organized if those interested in leather and allied manufactures desire to have a special Subsection in the Eighth Congress. Sectional Executive Committees for each of the 24 Sections and Subsections have been organized. The task of completing the working committees (comprising a total of about 25 members each) for all of these 24 Sections and Subsections is going rapidly forward.

The responsibility for the conduct of the Eighth Congress is vested in the Executive Committee.

The responsibility for the conduct of business before the various Sections and Subsections at their sessions during the Congress is vested in a Committee on Sectional Procedure, which Committee is composed of all the Presidents of Sections and Subsections, and tentative rules have been framed.

The Committees of Sections and Subsections, and particularly their respective Executive Committees, are charged with the responsibility of procuring papers for all their sessions, not only from chemists and others resident in the United States, but also from those resident in all other countries of the world. To the end that the most effective co-operation may be secured, it is earnestly urged that, in all countries outside the United States, there be very soon formed Committees of Sections and Subsections corresponding to those established in the United States, or so many of them as will provide fully for the interests of chemists and allied professional and business men in such countries as ma not be interested in all the Sections and Subsections of the Eighth Congress, and that, upon organization and announcement of such Committees, all chemists and all chemical and allied societies resident in such country and interested in the Eighth Congress communicate with those of their Committees in whose activities and purposes they are interested, giving the titles and scope of papers or other communications they may contemplate contributing to the Eighth Congress. It is suggested that all such societies within or outside the United States, which desire to co-operate with any particular Section or Subsection of the Congress, communicate that fact to the President of the corresponding American Sectional Committees. It is further suggested that Chairmen of Committees of all Sections and Subsections outside the United States com-

municate, at stated intervals, preferably the first of every month, to the President of the American Committees of the corresponding Sections or Subsections, the titles of papers or other communications promised, together with the names and post office addresses of their authors, so that the American Committee may be able to form an approximate estimate of the probable activities of the respective Sections for the guidance of those responsible for the conduct of the Eighth Congress.

In order that there may be beneficial co-operation and a close affiliation between the Eighth Congress and its Sections and Subsections on the one hand and other scientific or professional bodies meeting in or near New York or Washington at or about the time of the convening of the Eighth Congress, on the other, a Committee on Co-operation has been established; this Committee will be glad to communicate with any such associations in an endeavor to bring about such co-operation.

The President of the United States has shown his deep interest in the objects and purposes of the Eighth Congress by consenting not only to act as its Patron, but also to preside at the Opening Meeting of the Eighth Congress, which is to be held in Washington, D. C., on Wednesday, September 4, 1912. The President of the United States has also shown his great solicitude for the success of the Eighth Congress by causing invitations to be sent to all the Governments of the World to take part in the deliberations and the work of the Congress. The chemists, individually, and collectively as Societies, not only of the United States, but of all other countries of the world, therefore owe it not only to their science and to their profession to exert every effort to make the Eighth International Congress of Applied Chemistry completely successful, but they also owe it to their own countries and their own Governments to use every means in their power to see to it that every interest in their respective countries is properly and fully represented at the Eighth Congress and to demonstrate to their own Governments and their fellow-countrymen that, in accepting this invitation of the President of the United States, the confidence reposed in the chemists of the respective countries by their Governments has been fully justified. To this end the hearty and enthusiastic co-operation of chemists and allied professional and business men, and particularly of societies of chemists, and of allied professional and business societies the world over, and along the

lines suggested at various places in this pamphlet, is most earnestly solicited.

It is hoped that all the matters relating to this Congress will be given the widest possible publicity in all chemical and allied societies, and in all chemical and allied publications the world over, and that suggestions for changes which may more surely assist in the realization of a successful and profitable meeting may be made to the Executive Committee of the Eighth Congress.

Respectfully,

EIGHTH INTERNATIONAL CONGRESS OF APPLIED CHEMISTRY:

EDWARD W. MORLEY, *Honorary President.*

WILLIAM H. NICHOLS, *President.*

BERNHARD C. HESSE, *Secretary.*

NEW YORK, March 6th, 1911.

TENTATIVE RULES GOVERNING THE RECEIPT OF PAPERS FOR PRESENTATION OR PUBLICATION

1. All papers should be in the hands of the American Committee on or before July 1, 1912.

2. All such papers should be presented in duplicate, legibly written, but preferably typewritten.

3. Each paper must be accompanied by an abstract thereof, also in duplicate, legibly written, but preferably typewritten.

4. All papers received prior to July 1, 1912, and accepted for publication will be printed prior to the meeting of the Congress and grouped according to the Sections to which they are assigned; papers received after July 1, 1912, and accepted for publication will be printed prior to the meeting of the Congress if practicable, but it cannot be guaranteed that they will be placed in the Section to which they belong, but they may appear in an appendix.

5. The American Committee will neither revise nor edit any papers or abstracts; papers received for publication will be printed *in extenso* as offered, or only the abstract accompanying the full paper will be printed, or the paper will be printed by title only, together with the name and post office address of its author, or the paper will not be printed at all, as may be decided in each case by the Committee on Papers and Publications.

6. Authors will not receive printer's proofs of papers or abstracts submitted; authors must do their proofreading on the manuscript; whatever is printed by the American Committee will be printed in exact accordance with whichever of the authors' manuscripts is selected for publication.

7. Discussions will be recorded in the official language in which they are uttered, and participants in the discussions will have an opportunity of editing the manuscript report of such discussion; the American Committees will print from such edited manuscript report of the discussion, and printer's proofs will not be sent to participants.

8. No paper which has previously been published shall be read at the Eighth Congress nor printed in its final Report without the consent of the Sectional Executive Committee, the Committee on Papers and Publications and the Executive Committees of the Eighth Congress having first been obtained.

NOTE: The American Committee will proceed to print the papers during the first half of July of 1912. The size of the edition printed will be determined by the number of membership fees received on or before July 1, 1912; persons contemplating membership in the Congress should have their membership completed prior to July 1, 1912, in order that they may be sure of receiving a copy of the Report of the Congress; membership fees can be received after July 1, 1912, only as subject to the condition that copies of the Report of the Congress cannot be guaranteed, and will be supplied only until the number of extra copies printed shall have been exhausted.
